Registry Driven Exchange Servers for eGovernment Communities

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- CDC/PHIN scenarios
- Healthcare services integration

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Registry-driven Exchanges

Overview of the Approach and Capabilities

Exchange Features

Goal is to provide for:

- Ability to support a diverse and large community
- Low cost of adoption
- Rapid deployment and agile environment
- Reduced support and management costs
- Broad applications and legacy compatibility
- Empower digital integration and reduce paper
- Enable knowledge integration for G2B and G2C

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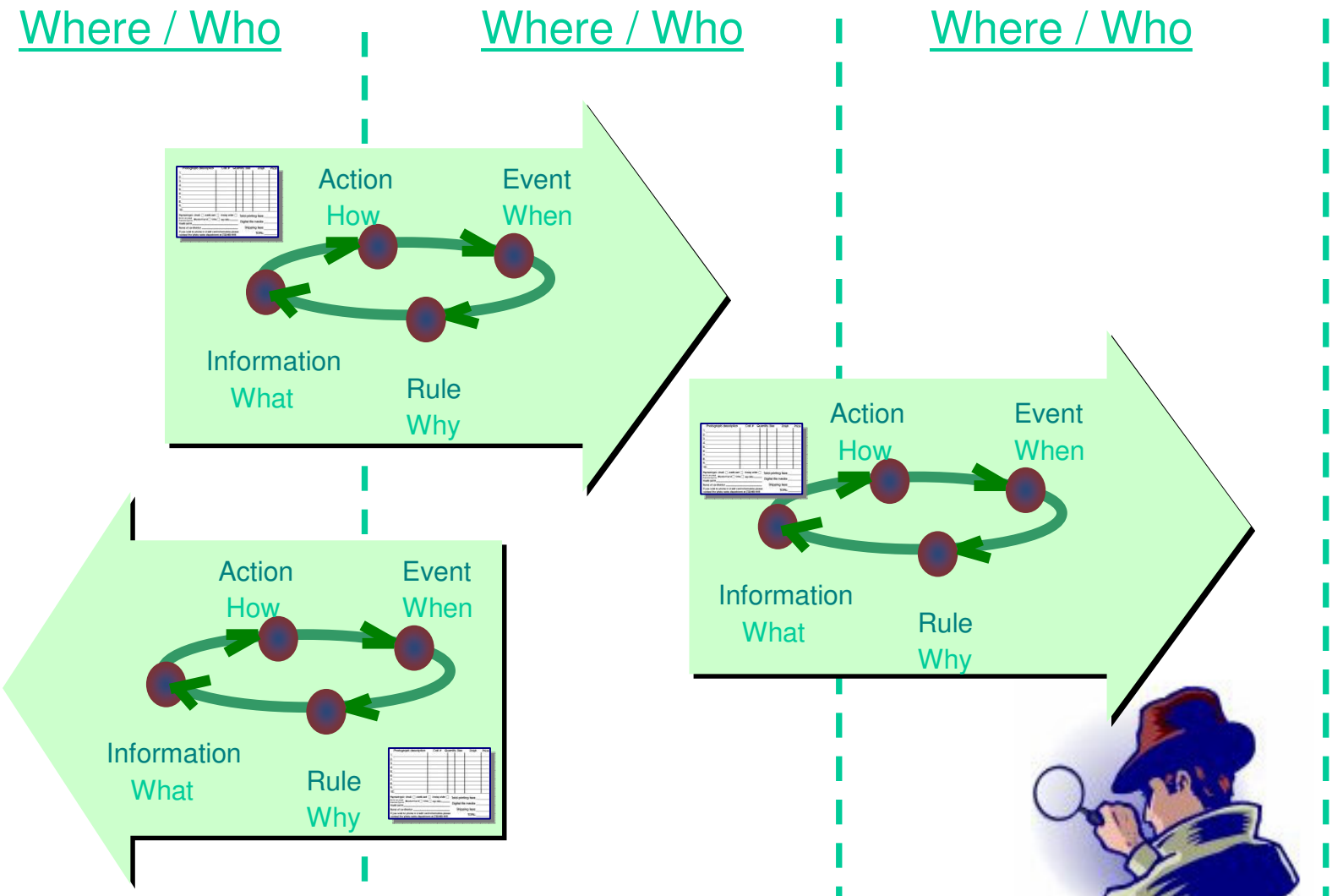
How do you put this all together?



Exchange Components

Information Exchange Integration requires:

- Outward facing messaging systems
- Formal agreement profiles for business participants
- Business process workflow definitions
- Information exchange rules
- Registry to hold agreements, definitions, scripts…
- Internal integration queues and dispatch methods
- User interfacing for entry and control

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Exchange Capabilities

The NIH design supports:

- Automated registration of participants
- Ability to self-certify exchange data
- Version control and ability to approve partners
- Declared and shared business rule scripting
- Centralized registry for participant management
- Integration through messaging services
- Backend application integration queues
- Uses open public specifications and open source

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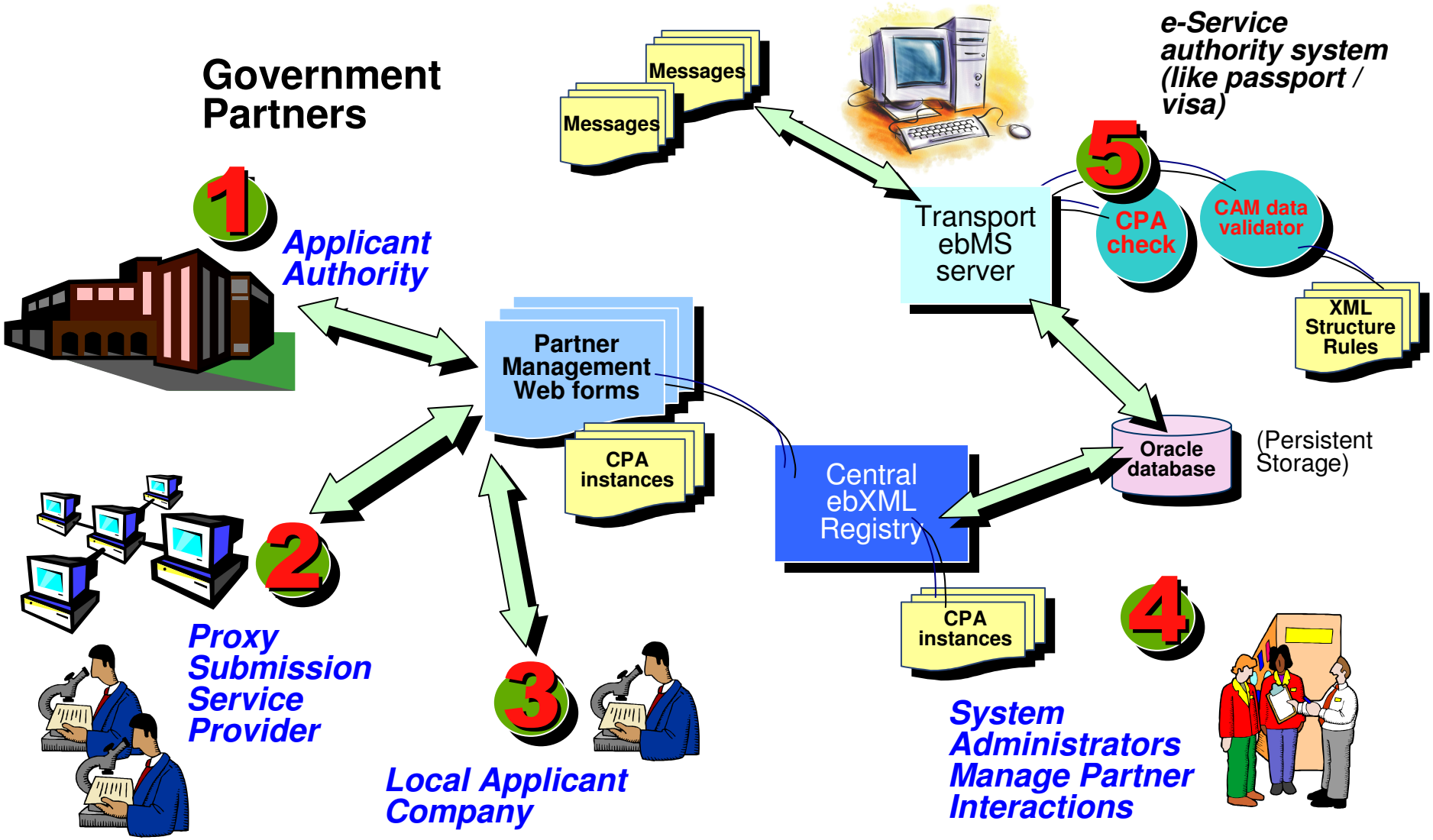
Implementation Overview



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Demonstration

Exchange Services - Architecture and Details

Partner Registration

User Interface provides for:

- Existing partner subscribing to electronic submissions
- Proxy Service provider for participants
- System Administration of CPA profiles
- Interactive transaction validation services

Partner Self-Certification

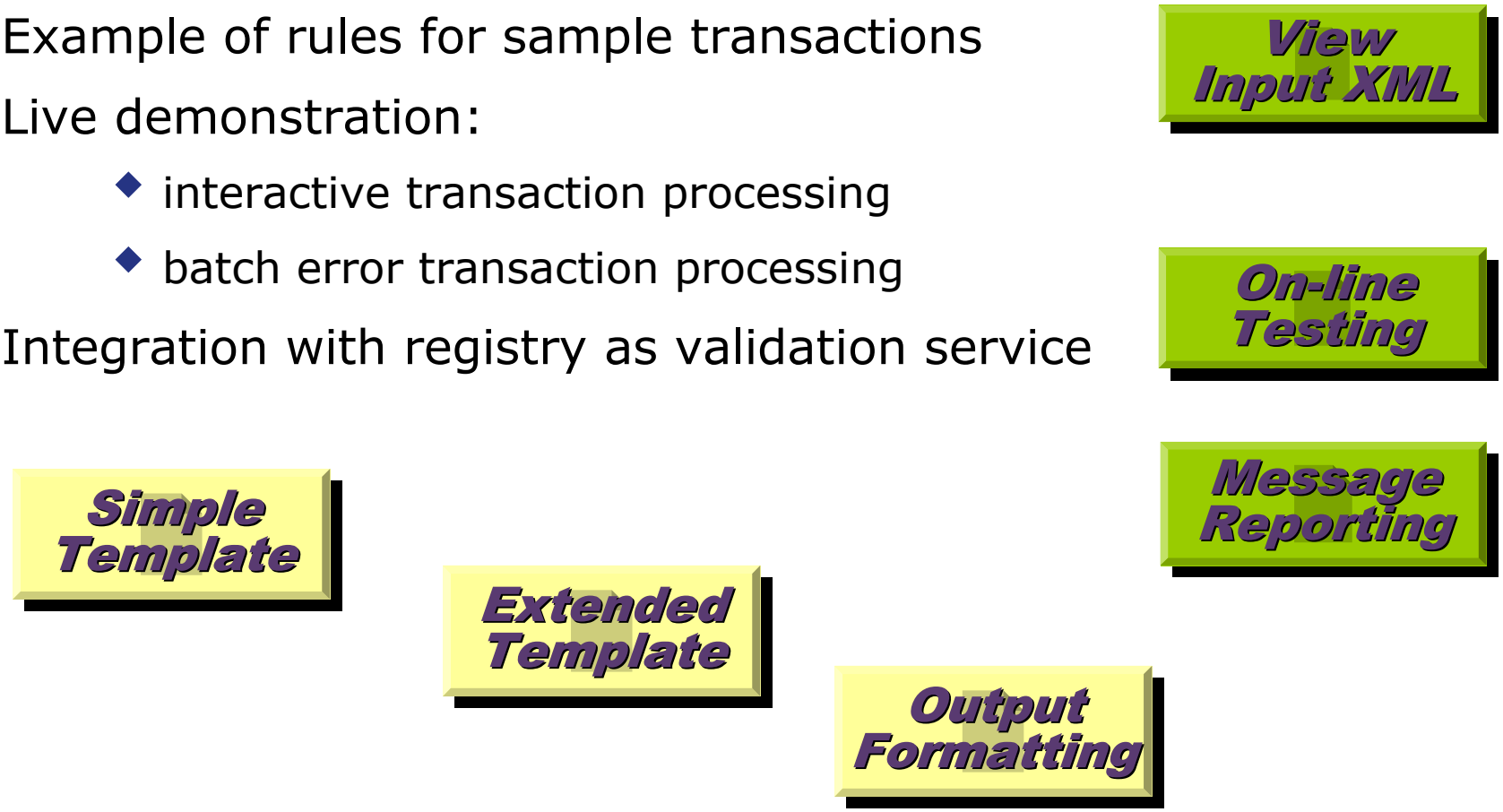
Overview of functionality

Example of rules for sample transactions

Live demonstration:

- interactive transaction processing
- batch error transaction processing

Integration with registry as validation service



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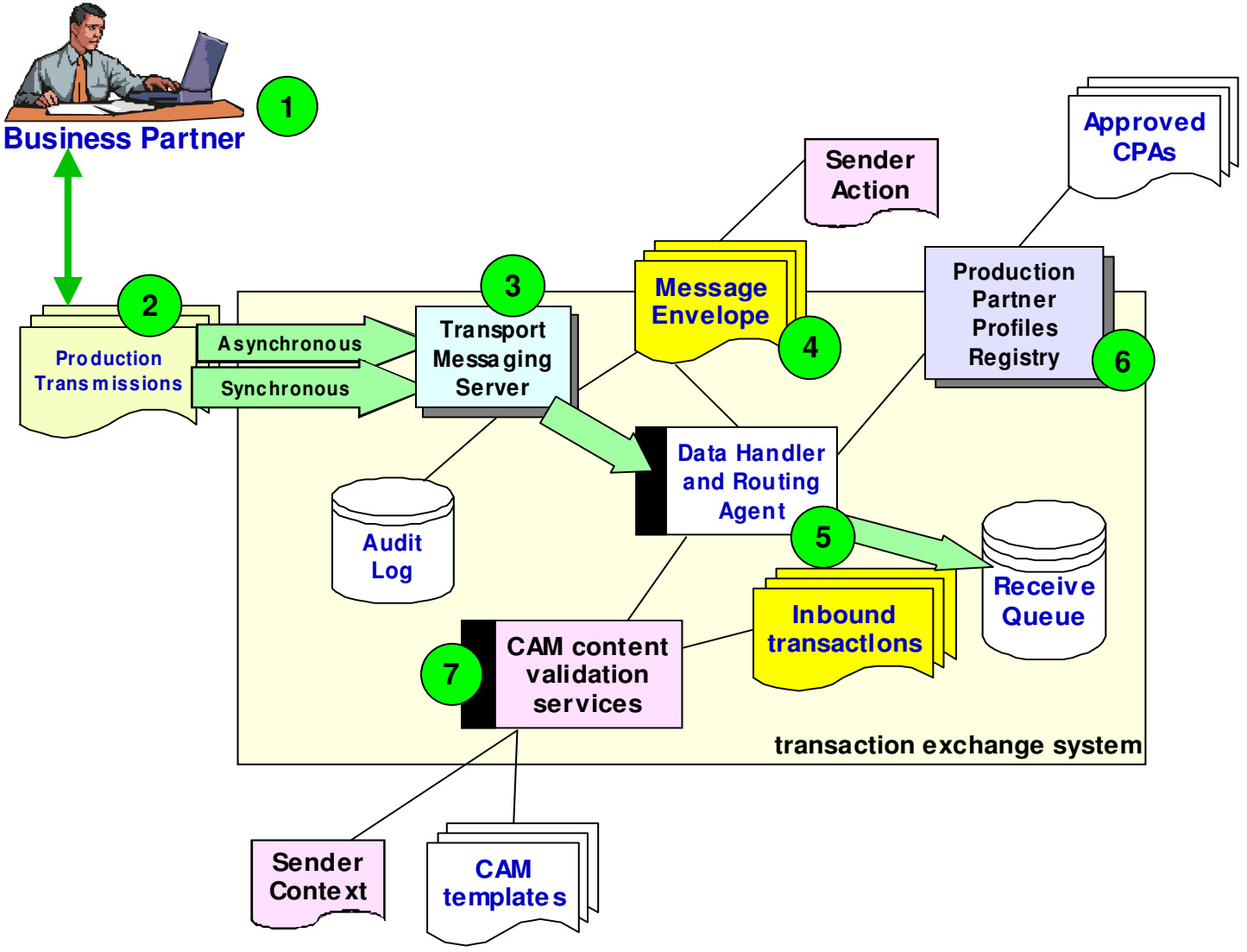
Exchange Operational Process Flow



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Linkage Between Messaging and CPA

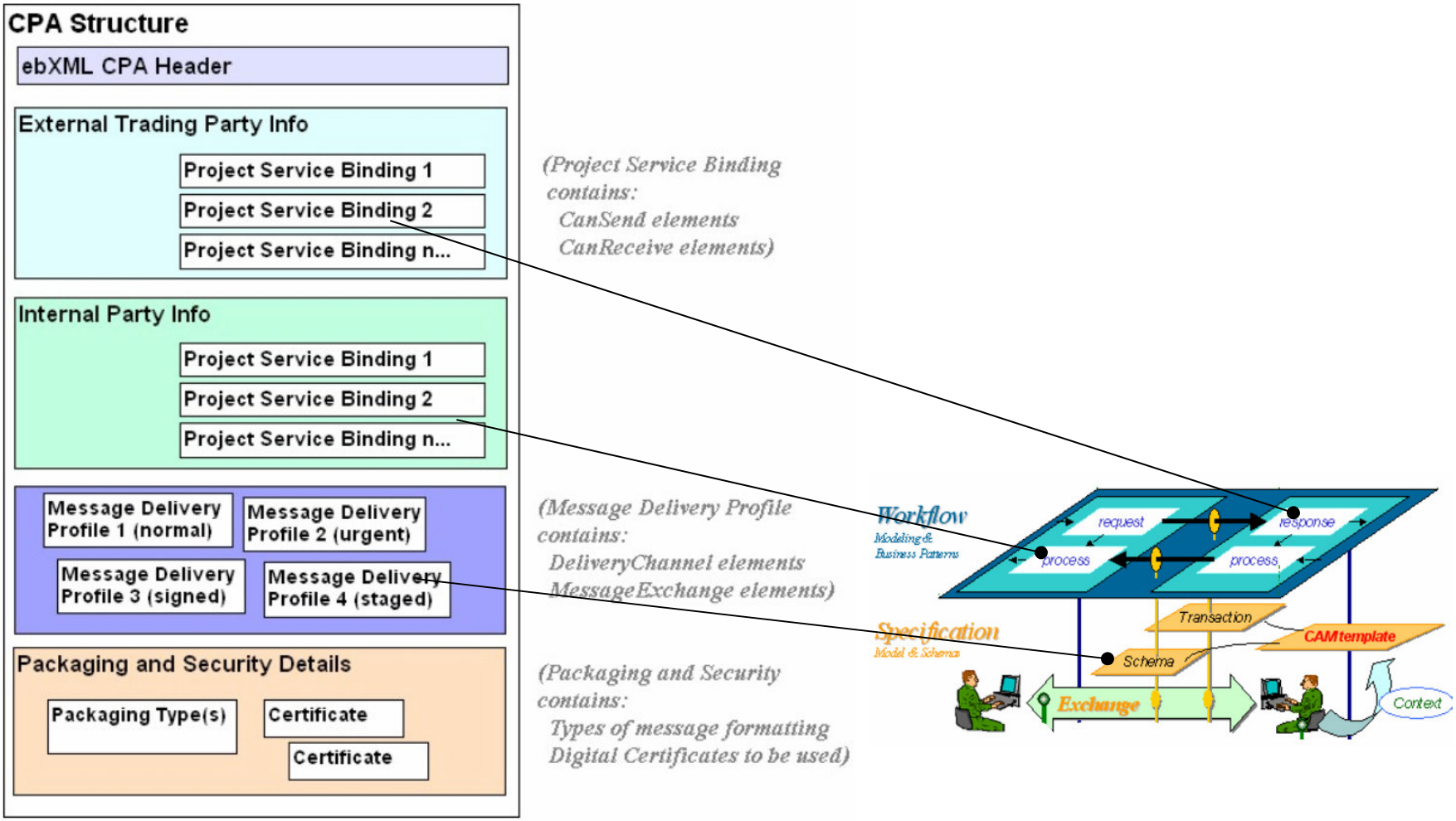
Messaging envelope contains:

- Sender name
- Service / Action names
- Sender CPA id value
- Receiver CPA id value
- Optional certificate

CPA validation contains:

- CPA id lookup to registry
- Verifies sender
- Verifies valid Service / Action pairs for this partner
- Coupling from Service / Action to transaction validation
- Coupling from Service / Action to backend delivery
- Verify certificate

CPA Structure Overview



http://www.oasis-open.org/committees/download.php/253/cpa-example-2_0b.xml

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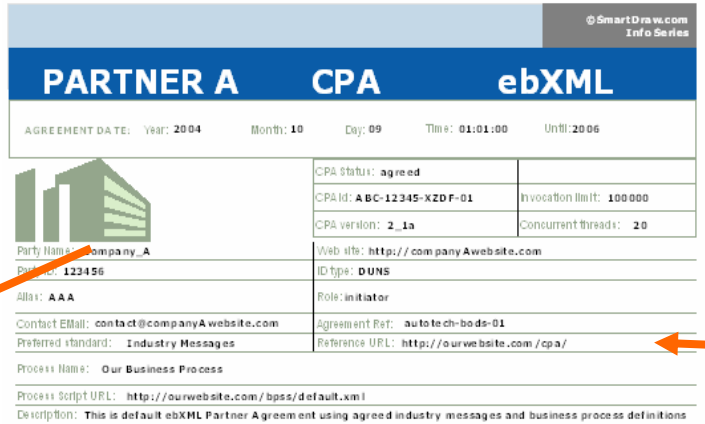
ebXML CPA functions

ebXML CPA provides:

- ✓ Service name and parameters
- ✓ Endpoint for invocation
- ✓ Role of an organization in the context of a service
- ✓ Organization demographic information
- ✓ Failure scenarios
- ✓ Business process scenario and business transaction activity step
- ✓ Link to partner responsibilities
- ✓ Transaction Messages being exchanged
- ✓ Transport level QOS parameters
- ✓ Certificate and Encryption configuration
- ✓ Business status of agreement

Constructing Collaboration Agreements

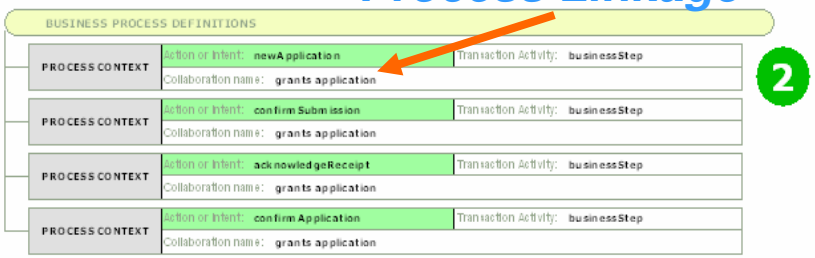


(DUNS Party ID Company Contact Web site Process Role Status Description)

1

Participant Information

Process Linkage



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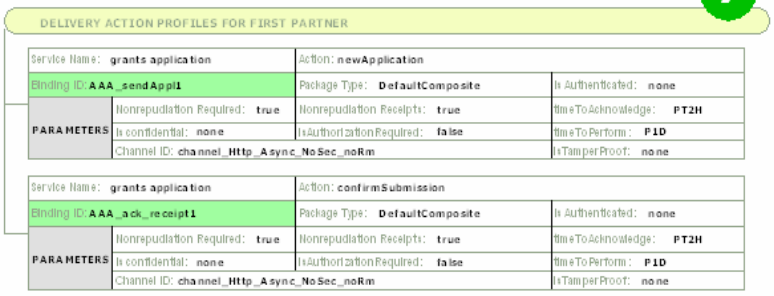

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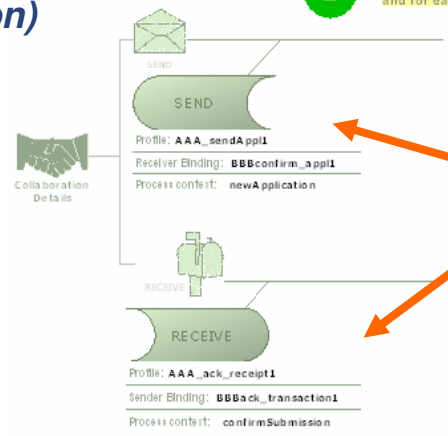
8 (Each Send and Receive object must be unique reference pairs, and for each set, the partner must have the inverse object)



Message exchange details

Messaging preferences

Demo

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Controlling Versioning via CPA id

- Using Receiver CPA id value to manage versioning
- Partner can publish to public registry a generic CPA that contains a reference CPA id value and outbound service / actions.
- Value of CPA id corresponds to specific version of system: e.g. NIHxCHG-eCGAP-010105-01
- Can be used to switch between inbound routing to test and production environments.
- This also allows explicit sub-versioning within the delivery handling, transaction validation and routing.
- Allows partners to automatically configure their delivery systems by looking up CPA details from registry via CPA id value.

Summary and Opportunities

CDC/PHIN Scenarios
and

Healthcare Services
Integration

What You Just Saw

- Theory and implementation of exchange approach
- XML templates for validation
- Management of automatic response messages
- Demonstration of on-line transaction testing service
- Use of registry to manage CPA documents

Lessons Learned

- Providing self-service facilities is key to rapid adoption
- Infrastructure exists today off-the-shelf to create pre-built templates for industry domains
- Using open specifications allows integration into wide range of environments
- Open source solutions allows partners to readily obtain technology
- Use of CPA id to manage partners and versioning

Opportunities

- Create infrastructure that can manage large communities via registry-managed control mechanisms
  - Provide simple integration for external partners by providing open source solutions as base-line
  - Supports commercial tools that implement ebMS V2.0+
  - Built-in methods that allow centralized control over rules, versions, and delivery routing
  - Reasonable security without being overly inhibiting to adoption
  - Complete integrated audit trail logging
- Available using today's specifications and toolsets
  - Proven technology with wide adoption and proven deployments

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Q & A

Discussion

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Software Components

Open Source components

- 'Hermes' freebXML ebXML messaging server
- 'OMAR' freebXML Registry system
- jCAM content assembly mechanism and validation component with versioning capability

Oracle database server

Tomcat Server

Technology Specifications

- http://ebxml.org
- http://oasis-open.org
- http://ebxmlbook.com/interop/

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Resources

www.freebXML.org

www.ebxml.org

www.oasis-open.org

www.ebxmlbook.com/interop

www.ebxmlbook.com/benefits

www.ebxmlforum.org

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